



E! - Z

Musician's

Guide



For the Grey Matter



FD / D E! upgrade

By Dr. Manny Fernandez

Our El-Z Musician's Guide is for the DX7IID El (or D/El conversion)

owner. In it you will find easy-to-read examples, explanations of

El terminology and other little-known and undocumented facts with

helpful hints and suggestions. Written in simple, tutorial fashion, it was

conceived and designed with the musician in mind—not the technician.

A registration card is provided in the event of future addendums.

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El-Z Musician's Guide
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1

Memory Management

1.10 Voice and Performance

1.11 Disk INT

1.12 Disk ERAM

1.13 Disk CRT

1.14 MIDI Sys/Ex

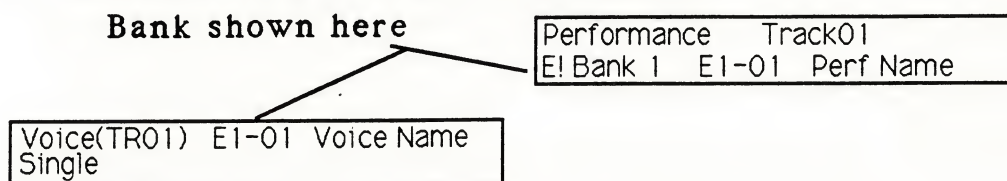
1.20 Song

1.30 FD MIDI Data Recorder

1.10 VOICE AND PERFORMANCE MEMORY MANAGEMENT

As you are aware, your DX now stores 4 banks of 64 voices and 32 performances, for a total of 256 voices and 128 performances. There are three ways to get this data in and out of your DX – Disk INT Load/Save, ERAM Load/Save and MIDI system exclusive.

- 1.11 **DISK INT:** This functions the same as the non E! DX. To save a Disk INT file, select the desired bank using the Yes+1/No-1 buttons. Select a Voice or Performance to 'activate' the bank. Then proceed to save as for the normal DX. Reference the Yamaha DX7II FD's owners manual if you do not know how to Save/Load disk files. To load a Disk INT file, choose the destination bank by using the Yes+1/ No-1 keys. Notice the bank number changing at the far left of the LCD display (The green back-lit 20X2 display).



Note that the bank number in the large LED display (The red 4 character display) does not change as you choose banks. The red LED display won't change until the bank is 'activated' by selecting Voice or Performance location. Remember this, as Disk INT will load to an unactivated bank. You don't want to erase important data by thinking that you will be loading new data into the bank shown in the Red LED display, when in fact it will be loading into the bank shown in the green LCD! Read the LCD!

You need to be careful when loading disk INT files into E!. Remember that a Performance stores only the voice locations of the necessary voices with the performance parameters. For the Performance to be correct the Voices need to be in their original locations. Thus, if you save a Disk INT file from E! bank 3 where all Performances use Bank 3 voices, that file must be loaded back to bank 3 to have the correct voices for the Performances. If, for instance, you load this file that came from bank 3 back into bank 2, the newly loaded bank 2 Performances will now be wrong because they will be looking to bank 3 for the voices that make up the performance. The Performance parameters will all be correct, but the sounds will be whatever is in those locations in bank 3. This problem will not occur with disk INT files saved from a non-E! DX7II FD. The bank numbers for the voices were not saved as there are not any banks on the normal DX. The best way to avoid this confusion is to move the entire memory in and out of the DX as a single file – ERAM, which we'll cover next.

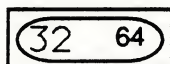
- 1.12 **DISK ERAM:** The second way to load/save the data is ERAM. This is very convenient as it does all 4 banks and 22,000 seq. notes at once. Therefore, if you've ironed out all your voice location problems (like those mentioned above), you should save and load voices as ERAM. The drawback is that it takes a minute and a half per save/load. But everything stays in order! There is, however, one problem. An ERAM save/load does not include the User Int 1 and Int 2 microtunings, or your system set up. You need a disk INT save/load to get these tunings and system in and out of your DX. You also need to be aware that even though you have 4 banks of memory, there is still only memory for 2 User defined microtuning scales (the 12 tone scales are different). This data always loads into the memory with a disk INT load. Each disk INT load erases the previous microtunings. Thus, if you load all 4 banks in order with your favorite sounds, the 2 user microtunings in memory will be the ones from the 4th and most recent disk INT load. All performances that use User microtunings Int 1 and Int 2 in Performance banks 1 thru 3 will play incorrectly. The severity of this will depend on the actual scales. To save the User Int 1 and Int 2 Microtunings, choose any bank and do a disk INT save. Name it with a similar name as the corresponding ERAM file to remember which files go together. Then, save the ERAM file. Next, we'll be putting the data back in.

Say you don't know what is in your DX, or you take your disk to a different E! DX. You want to load up your stuff. The first thing to do (after turning off the memory protects) is to load the disk INT file. The destination Bank doesn't matter, just as when we saved the data. This is because we will do an ERAM load after the disk INT load is completed. The ERAM load will configure the entire memory correctly, erasing over whatever bank you loaded the Disk INT file into. The only things left over from the Disk INT load will be our 2 User microtunings and the system set up! So it takes at least 2 disk loads to load/save your whole E! set up. If there are Cart Fractional Output Scalings or Cart Microtunings, then a third file would be needed, as the Cartridge disk files are separate from INT and ERAM. Load/Save the Disk CRT as normal. Keep the file names similar so you know what disk INT, CRT and ERAM files go together. This is why the Sound Source Super E! disk, for example, has 3 files – The Disk INT file for the 2 User Microtunings necessary for the drum kits, the Disk CRT file for the Top 40 Fractional Output Scalings, and the ERAM file for all the Voice, Performance and Demo sequence Data.

- 1.13 DISK CRT: Disk CRT works exactly as the non-E! DX. This can be used to Save/Load either Fractional Output Scalings, Microtunings, or additional Voices. Make sure there is a cartridge in the slot, and Load/Save as you normally would. Every load automatically formats the cartridge to the correct format necessary for that Disk CRT file.

There is an important point related to cartridges. All voices and performances must access the same cartridge, as there is only 1 cartridge slot. This can cause problems with voices using the Fractional Output Scaling mode. Say you are editing a piano sound that uses fractional output. The original voice is in E! bank 1 position 1. You edit the Fractional Outputs, and now want to save the new voice, and save it to E! bank 2 position 1. So now you have your two piano sounds in locations E1-1 and E2-1, right? Wrong!! You have the new edited sound in both E1-1 and E2-1. This is because the RAM4 Cart doesn't know banks, just voice number, so when you save to location E2-1, the edited Fractional Scalings wrote over those in cartridge position 1! All voices in position 1 will look to Cart position 1 for their fracts. To keep each sound with its correct Fractional Scalings, only 1 position (1 to 64) per all 4 banks can have a Fractional Scaled sound. For example, E1-1 has fracts. E2-1, E3-1 and E4-1 cannot. E2-54 has fracts. E1-54, E3-54 and E4-54 cannot. Etc. Make sure no two exact voice numbers in different banks have fracts. 64 total fractional output voices per 256 total voices with no voice number overlap. The best way to avoid this problem is to store all voices with Fractional Output Scalings in the same bank.

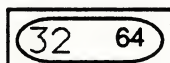
- 1.14 MIDI SYS/EX: The third way to move data in and out is via MIDI system exclusive. Press button 32 until the ERAM MIDI transmit menu appears



MIDI out >ERAM1 >ERAM2 >ERAM3
Transmit ERAM File?

Due to the size of the data, it is broken down into three pieces. Each must be sent in order. Start with ERAM1, and when completed, move cursor to ERAM2. Send ERAM2, and when completed, move cursor to ERAM3. Send ERAM3. When the display says "Completed!" you have transmitted the entire contents of ERAM, all voices, performances and sequencer data.

If you just want to send sequencer data, select the transmit SE menu under button 32



MIDI out >SE1 >SE2 >SE3
Transmit SE! File?

Again, data is broken into three pieces. Send each piece as above. No voices or performances go with this data. It's just song and pattern data.

The normal DX MIDI transmit modes work the same as for the non E! DX. See your Yamaha owner's manual to transmit single voices, 32 voice blocks, single performances, 32 performance blocks and microtunings via MIDI.

1.20 SONG MEMORY MANAGEMENT:

E! has the ability to access only ten songs, regardless of length. If all ten songs combined total less than 22,000 notes/events, then it is not necessary to save the songs to disk as SE! files. ERAM will load/save this information for you, along with all your voices and Performance set-ups.

If the songs combine for more than the 22,000 events, then each song must be saved as an SE! file. When saving the files, remember that you should only name the file 'x', and save it to the file number that corresponds to the song number. For example, song 4 saves to file 4, name is x.

16 48

Disk SE! >Dir >Save >Load
File 4 x

All 10 songs must be saved, as the automated disk load that occurs when calling up a sequencer performance will erase all the other song and pattern memory.

You should get in the habit of using the following disk set-up. 1 disk should contain:

- 1 ERAM file, for all internal Voices and Performance set-ups.

- 1 Disk INT file, to load any necessary user microtunings and System set-ups.

- 1 Disk CRT file, for any CART Fractional Output Scalings, Microtunings, or Voice/Performance data.

- 10 SE! Song files, for maximizing the amount of sequencer memory.

When you have all this on 1 disk, consider that disk as full – depending on the number and length of the SE! files, it will be pretty close to full. Just don't put extra stuff on it, even if it has space. Disks are pretty inexpensive, and you should start a new one rather than risk the confusion of which SE! files go with what ERAM, INT and CRT Fractional Scalings.

Use separate disks for E! data and 'normal' DX INT and CRT saves. This way, you have 'source disks' of regular DX voice data that can be used to make templates with new voices, and 'system disks' which contain sequences and organized ERAM data. When loading in a new 'system disk', remember two things. First, load in the disk INT file for user microtunings and system set ups, then load the ERAM second. Load any necessary disk CRT files. Then this disk must be left in the drive so that the SE! song files may be accessed for playback. Of course, if you didn't save any SE! files because all ten songs total less than 22,000 events, then you need not leave the disk in the drive. But be aware not to put another disk with SE! files into the drive. Every time you call up a sequencer performance, it will look to disk for that particular song. If it finds a file, it will load it. This will obliterate all your other songs, and necessitates re-loading the original ERAM to get back songs that were not saved as SE! files. If you desire, you can do disk swapping like this to hear what one song sounds like with a totally different Engine set-up. The advice here is to be aware of what you do.

The E! DX7 FD has an expanded Disk MDR memory for storing bulk MIDI data. The original Disk MDR functions and file compatibility have been retained. There are now two types of possible MDR files, Disk MDR (the original one, with a 20K buffer) and Disk MDR2 (the new one, with about a 128K buffer). These are separate files and directories. Disk MDR files won't show or load to the Disk MDR2 directory and vice-versa. To use the MDR storage capabilities, you must be able to initiate the MIDI bulk dump from the panel of the sending unit. The DX will not transmit any Bulk dump requests nor will it do any system exclusive handshaking.

DISK MDR: This functions exactly as described in your Yamaha owner's manual and supplemental books. Please reference those booklets. You can store any MIDI data up to 20K bytes on your DX's disk drive.

DISK MDR2: This functions the same as Disk MDR, but it has its own directory and can store MIDI data up to about 128K bytes! However, you must be aware that using MDR2 will erase your total ERAM memory. This is because the ERAM memory becomes the MDR2 buffer prior to saving the data to disk. Make sure you have the current ERAM data saved to disk before doing any Disk MDR2 Saving/Loading. Save and Load files as you would for regular MDR.

2 *Definitions of E! Terms*

DEFINITIONS OF E! TERMS:

Chords: This is a Performance mode where preset chords will play when triggered by a note in the bottom octave of the keyboard. These can play either the DX and/or MIDI instruments.

Chord Hold: This pertains to the Player and Chords Performance modes. When set to 'Off', you must keep your finger(s) on the chosen bottom octave key to hear the Chord sustain/Player pattern play. If set to 'On' then you don't have to hold the key. Just hit a bottom octave key to activate Chords or Player. Chords will sustain and Player will continue playing. Player patterns will change as you hit new keys. To stop Player, press the 1-31/33-64 switch or FS2 (if it is assigned to Engine on the FS/CS page under button 27).

DVA: Dynamic Voice Allocation. This enables the DX to reassign any unused notes to a voice that is currently playing. It enables the DX to sound as though it has more than 16 notes of polyphony.

Engine: Fancy name for the on board DX/MIDI event processor. It is basically the enhanced Performance Mode parameters. Buttons 27,28 and 29 cycle thru the various menus. These menus let you tell the DX what you want it to do, be it playing a sequence, a normal DX Performance, etc. The most important menu is the main track assign menu.

Engine is also a possible FootSwitch destination assignment. It means that FS2 will act as a start/stop switch for the Sequencer performance mode, as a stop switch for the Player performance mode, and as a Track 1/Track 2 select switch for the Normal 1 performance mode.

FlotSplit: This is a Performance mode that creates a moving split point between two tracks. Track 1 is in the left hand, track 2 is in the right hand. The main track assign menu is where the track destinations are chosen, either DX or MIDI.

Player: This is a Performance mode where preset sequences will play when triggered by a note in the bottom octave of the keyboard. These can play either the DX and/or MIDI instruments.

Octal: This Voice mode means that the DX itself can play 8 different sounds. The sounds are designated A thru H.

SEIquencer: This is the name of the sequencer program supplied with E!. You must load this program to record your own songs. Load option under button 14.

Sequencer: This is a Performance Mode where you can play back songs you have recorded in SEIquencer.

Track Hi: This is a Performance mode where track 1 will play all notes, while track 2 will only play the highest note. The main track assign menu is where the track destinations are chosen, either DX or MIDI.

4 Way Layer: This is a Performance mode that sends 4 note-ons per note played. 1 note goes to each of the destinations chosen in the first 4 tracks of the track assign menu, MIDI or DX.

8 Way Split: This Performance mode breaks the DX keyboard into 8 zones. Each zone can play a DX sound or a MIDI channel. The first 8 tracks of the track assign menu control the routings for each zone.

3

DX Set-up

- 3.10 DX7 as single sound source
- 3.20 DX7 as multi-timbral sound source
- 3.30 DX7 as a MIDI sound module
- 3.40 Controller Mapping
 - 3.41 CS Controllers
- 3.50 Octal Mode panning

DX SET UP

The following is a cook book type guide for setting up your DX for use with SE!quencer, Chords and Player. The "template" set-up method is straightforward and minimizes confusion. These examples are given from the perspective of SE!quencer, but all the set up info applies to Chords and Player.

3.10 DX AS A SINGLE SOUND SOURCE: — MIDI IN > NORMAL NOT DIRECT

If the DX is going to play one of its normal voice mode sounds, i.e. a Single, Dual or Split sound, choose the voice mode you wish by pressing the appropriate voice mode select switch. Select a voice(s) as you normally would. When you have what you want, press the Performance button.

Press the EDIT button. Press Button 28 until you reach the master track assign page.

EDIT	28 60	TR>Dest>Transpose>Patch>Curv>Level 01 +00 --- NORM 05
------	-------	--

All tracks are currently assigned to the DX. Use the <left and right> Key Set buttons to get to track 3. This is where we'll start our MIDI assignments. Say you have 3 modules/synths and a drum machine. Assign track 3 to the MIDI ch. of module 1, trk 4 to the MIDI ch. of module 2, trk 5 to the MIDI channel of module 3, and tracks 6-15 to the MIDI channel of your drum machine. Change the patch, velocity and curve values for each track as desired. NOTE: This assumes that your drum patterns will be recorded into SE!quencer as note-ons and your drum machine will just be playing as a slave. We'll cover MIDI sync to a drum machine that will be playing its own patterns in the chapter "MIDI SYNC".

It is important to remember that the SE!quencer metronome is actually played via track 16. The metronome sound is whatever is assigned to track 16. If there is no sound assigned here there will be no metronome! The notes the metronome plays are B4, G#5 and G#4. Set up your drum machine so that 1 short sound (sidestick, etc) is assigned to these notes or note range. If you can only assign one sound to one key, then you need to use three short sounds. Then assign the MIDI channel of your drum machine as the destination of track 16. If your particular machine won't allow you to map sounds, refer to the chapter "Getting a Metronome Sound".

Now, you have completed your Engine Mapping. Press button 28, go to Perf mode, and select Sequencer (or Chords or Player).

28 60	>Perf Mode>Song>Tempo>Sync Sequencer 01 140 INT
-------	--

Go to button 29, scroll thru to the Performance name menu, and give this set up a name. Turn off the internal memory protect (under button 14). Press the Performance button, select the E! bank with the yes+1/no-1 buttons, press and hold the store button, and store this in a Performance memory location.

The set up is complete. You should save this template in other memory locations so you don't have to set it up every time you want to record. The only thing that still needs to be done is to select the proper Song number on the performance mode page under button 28.

3.20 DX AS A MULTI-TIMBRAL SOUND SOURCE:

If you want to use the DX as a multi-timbral source, we need to do a little more work to set up our templates. We need to do this if we want the DX to play 2 or more sounds across the entire MIDI note range.

First, press the Single play to put the DX into normal Single play mode. Then press the EDIT button. Press button 28 Voice mode repeatedly until the Voice mode option appears. Use the yes+1 button to increment this up 4 times to the 'Octal' voice mode.

Single	EDIT	28 60	>Voice mode octal
--------	------	-------	----------------------

This sets the DX to its Multi-timbral mode. You now need to decide what sounds you want to use. To select voices, press the Single mode button again. The display will read A>Ex-xx (whatever voice was in the buffer when we started).

Single Voice(TR01) A>Ex-xx Voice Name
Octal E! Bank x

→ Select a sound in OCTAL MODE

Use the 1-32/33-64 button and the voice select buttons to find the A sound. Press the A/B button to advance to the B sound. Using the same procedure, select the B voice. Use the A/B button to advance to the C voice. Again, select the sound you want for the C sound. Repeat this until you've filled all slots A-H or you do as many sounds as you need. Now, you've probably noticed that there is a delay as E! 'loads' the voices into octal memory. If you know or write down the E! bank and voice number of all the voices you need, then you needn't waste time looking for them. NOTE: Regardless of how many voices you've used, press the A/B button until the display reads Voice A again before continuing.

A/B Voice(TR01) A>Ex-xx Voice Name
Octal E! Bank x

Now, press EDIT, and then press button 28 until you reach the master track assign page. It will show that the DX is on one of the 16 tracks.

EDIT 28 60 TR>Dest >Transpose >Patch >Curve >Level
01 A(voice name)+00 --- Norm 05

If it's on track 1, great — If not, then use the <left right> Key Set buttons until it shows Track 1. To minimize confusion, we will always assign voice A to track 1, and always make sure the display reads track 1 when we leave that page to go to 'Single' (octal voice assign) mode to change voices. Similarly, we will always make sure the display reads Voice A when we leave this 'Single' (octal voice assign) mode to go to the track assign menu.

Voice(TR01) A>Ex-xx Voice Name TR>Dest >Transpose >Patch >Curve >Level
Octal E! Bank x 01 A(voice name)+00 --- Norm 05

We need to do this because every time we leave the octal voice select mode to go to the track assign menu, the voice we left in the display will get assigned to the track displayed in the Track assign window. By following the above procedure, we will always be leaving it on track 1 and voice A, so our assignment will stay correct. You may have wondered why your voices sometimes changed around when you would leave SE!quencer to find new voices and returned. This is why.

To continue, assign voices in ascending track order, A to track 1, B to trk 2, C to trk 3 etc through to voice H to trk 8. Remember that track 1 is the live play track, and it also plays the right hand sound for Player and Chords. This means that sound A is your live play sound. Of course, if you don't want to use the A sound for this, assign track 1 to some other destination. Assign MIDI channels to tracks 9-15 if desired, or double/triple assign voices A-H to these tracks. Remember there is no overdubbing possible, so you may want to have 2 or more tracks for 1 sound to do 'overdubs' or to try 2 different versions without erasing the first take. Again, we need to get a metronome sound. Assign trk 16 to your drum machine as in the previous set up example, or assign it to voice H. Just make sure that sound H is a relatively high pitched, short, percussive sound. Even though it 'wastes' a voice assignment, SSU uses a special metronome sound for voice H and uses the DX as the metronome source. See the chapter on 'Getting a Metronome'.

Now our track assignments are complete. Next, we need to set the polyphony for all the voices. Press button 29 until you reach the DX Polyphony page. Use the cursor controls and the yes+1/no-1 buttons to set the polyphony for each voice, starting with A and ending with H.

29 61 DX >A >B >C >D >E >F >G >H
Polyphony 14 - - - - -

Set these values

*VERY IMPORTANT FOR
PLAYER AND CHORDS

There is a maximum of 16 total notes. Trying to assign more notes to a sound after this limit is reached will steal voices from the lowest letter priority (H is the first to lose notes, then G,F, E etc).

If you don't know how many voices you'll need, then press button 29 again and change DVA to ON.

(29 61)

>DVA >Clock out >Chord Hold >MIDI in
on on off Normal

Return to the DX polyphony page (button 29) and set all sounds A-H to off (--).

(29 61)

DX >A >B >C >D >E >F >G >H
Polyphony - - - - -

Now you have set-up the DX for complete dynamic voice allocation. The notes will be assigned as needed, to a maximum of 16. See the E! Owner's Manual for a discussion of the merits of fixed polyphony versus DVA.

Also under button 29 are the Note Shift page, the Microtuning page and Volume page. Set values as needed.

(29 61)

Note >A >B >C >D >E >F >G >H
Shift + 0 + 0 + 0 + 0 + 0 + 0 + 0 + 0

Micro tuning >Table select
Preset 1 Equal temperament

Micro >A >B >C >D >E >F >G >H
Tuning off off off off off off off off

DX >A >B >C >D >E >F >G >H
VOLUME 128 128 128 128 128 128 128 128

Set ballpark values in the volume page. It's easier to set this page when you're playing back the sequence. See "Finishing Touches".

Press button 28 until you reach the Performance mode menu. Use the yes+1 button to increment the mode to Sequencer (or Chords or Player).

(28 60)

>Perf Mode >Song >Tempo >Sync
Sequencer 01 140 INT

Now we will name and store this template. Performance name is under button 29. After naming the performance, press the Single button. We need to do this because we started editing from Single mode. Next press the Performance button. Select the E! bank destination using the yes+1/no-1 switches. Press and hold the STORE button, select the destination (1-32), and press yes+1 twice. You've now stored a 'compositional template'. There are only two things that have to be changed when you have actually recorded a song. You need to select that Song number (1-10) on the performance mode page under button 28, and get the proper voice mix volumes. See the chapter on "Finishing Touches".

(28 60)

>Perf Mode >Song >Tempo >Sync
Sequencer 01 140 INT

Set the desired Song number and Tempo BEFORE saving

3.30 DX AS A MIDI SOUND MODULE:

The E! upgrade changes the DX's MIDI implementation. Single play mode still works normally, as does Dual mode. However, Split mode is different. It functions as a single MIDI channel split. All MIDI notes below the split point sound voice A, all those above sound voice B. You cannot set voices A and B to different MIDI channels for bi-timbral operation. In fact, the option no longer appears in the MIDI menu 1 button 31

31 63

Channel >Trns ch >Rcv ch >Omni
messages XX XX off

E! DX

Channel >Trns ch >Rcv ch >A >B >Omni
messages XX XX XX off

Regular DX

To play 2 or more sounds across the full MIDI range, two things must be done. First, the multi-timbral Octal mode must be selected as the Voice mode under button 28. Select the voices you want as described in the sequencing set-up chapter. Performance mode under button 28 should be Normal 1.

28 60

Perf Mode >Song >Tempo >Sync
Normal 1 --- --- ---

MIDI in on the DVA page of button 29 needs to be set to DIRECT.

29 61

>DVA >Clock out >Chord Hold >MIDI in
on on off Direct

Set this to Direct

Now the DX can receive on multiple MIDI Channels. MIDI channel 1 plays the sound assigned to track 1, MIDI 2 plays the sound assigned to track 2, MIDI 3 plays the sound assigned to track 3 etc thru to MIDI 16 playing the sound assigned to track 16. Set the polyphony for each voice, decide if you want DVA on, and assign any desired note shifts and microtunings.

DX >A >B >C >D >E >F >G >H
Polyphony --- --

Set the # of Voices for each sound

29 61

Select and enter values for these parameters as desired

>DVA >Clock out >Chord Hold >MIDI in
on on off Direct

Note >A >B >C >D >E >F >G >H
Shift + 0 + 0 + 0 + 0 + 0 + 0 + 0 + 0

Micro tuning >Table select
Preset 1 Equal temperament

Micro >A >B >C >D >E >F >G >H
Tuning off off off off off off off off

The track transpose, velocity curve and level all still function. The DX can even re-map MIDI channels for you. For example, assign track 10 to MIDI 6. Now info on MIDI channel 10 going into the DX will become channel 6 info at the DX's MIDI OUT (not the Thru). The DX will even transpose and velocity process the data! If desired, set these parameters.

TR >Dest >Transpose >Patch >Curv >Level
10 MIDI 06 +12 06 POS2 05

MIDI Ch 10 info going in gets re-mapped to MIDI Ch 6, with higher velocities and transposed up an Octave

3.40 CONTROLLER MAPPING:

The E! equipped DX has the ability to map real time controllers to different track destinations. These controllers are:

Aftertouch	Pitch Bend	Modulation Wheel	Breath Controller
Foot Control 1	Foot Control 2	Portamento Time	Portamento On/Off
Sustain Pedal	Key Hold Pedal	Soft Pedal	MIDI In Controller
Continuous Slider 1	Continuous Slider 2		

The assignment menu is found under button 27. Press button 27 repeatedly until the display shows

```
>Controller >Destination  
AFT TOUCH Track 1
```

The actual controller shown and its destination may be different

Use the cursor controls to select either "Controller" or "Destination". Use the yes+1 and no-1 buttons to select the controller type and the track number. Where the controller will actually be routed to is determined by the Main Track Assign menu:

```
TR >Dest >Transpose >Patch >Curve >Level  
01 MIDI09 +00 55 Norm 05
```

The previous two displays would mean that Aftertouch would be routed to MIDI channel 9

Each of these controllers can be assigned to their own track, meaning that their movements will only affect the destination of that track. The controller maps are programmable per Performance. They are not global for the instrument. This allows for great versatility in creating your Performance set-ups. For instance, you could assign Aftertouch to control your DX, Pitch bend to control MIDI module 1, and Mod Wheel to control MIDI module 2 etc.

* Unfortunately, each controller can only be assigned to 1 track at a time. For example, Pitch Bend could be assigned to track 4, but only track 4, not tracks 4 and 5. This means that the real time controllers will only affect ONE track of either the 4 Way Layer, 8 Way Split, Track Hi or Floating Split performance modes. For example: You can't Pitch Bend all 4 sounds in a 4 Way layer. Mod Wheel could only affect 1 zone of an 8 Way Split, etc.

The same is also true for Player, but since you'll only be playing one track live, this will not be a problem. Just make sure that track 1 is the destination for all of the controllers (remember that track 1 is always the live play track). The live play track of SE!quencer (also track 1) would be the same as for Player.

3.41 CS SLIDERS:

CS Tempo destination must be a DX voice

CS1 and CS2 are assigned as usual, on one of button 27's menus. There is one additional option. CS1 or CS2 can control the tempo of SE!quencer or Player in real time. Tempo is the last option on the CS destination page under button 27. It doesn't matter if the A and B destinations are on or off. What does matter is that CS1 or CS2 must be assigned to a track that plays a DX voice (as described above) in the main controller map. For example: If CS2 is assigned to track 3 in the main controller map, and track 3 is assigned to MIDI Ch 4 on your Main Track Assign menu, then there will be no effect even if you assign the CS2 routing to Tempo. CS2 will not do anything, even though you set it to control tempo. The track 3 destination must be a DX voice.

Also, note that the E! DX may not respond properly when assigning operator total output to either CS1 or CS2.

The control of the Pan position of a voice is possible, in a limited way, when the DX is in its multitimbral 'octal' mode. A voice can be either hard left, hard right, or alternate between the two. The normal DX's Pan functions are no longer operational. However, there are ways to separate voices to the A and B outputs. Eight notes are played by each 'side' of the DX. Where any given note goes depends on its time relationship with other notes. The first 8 notes are played by the A channel, the second 8 by the B channel. Note priorities are in the same order as fixed polyphony is assigned to voice letter — Voice A is highest priority, B is second, C is third, etc, H is last. A voice with fixed Polyphony has priority over a voice using DVA. Here are some examples to illustrate voice placement:

1) Sound A=8, B=6, C=2 notes on the polyphony page, DVA off. A has priority, so all 8 notes will always sound in the A channel. Both B and C will always sound in the B channel.

2) Sound A=6, B=4, C=6 notes on the polyphony page, DVA off. Again, all of A's notes will always go to output A. There are 2 notes left over (8 max minus 6 to sound A), so the first 2 notes played with the B sound will also go to output A. The remaining 2 notes of the B sound will go to output B. All 6 C notes will always go to output B.

3) Sound A=6, B= —, C=4 notes on the polyphony page, DVA on. This is where the fun starts. The first 6 notes of sound A will go to output A. The first 2 notes of sound C will also go to output A, and the second 2 to output B. Remember, fixed poly has priority over DVA, and therefore voice C now has priority over voice B. Voice B will always sound at output B, with up to 6 notes. Since DVA is on, sounds A and C can play additional notes if sound B is not active. All additional notes played with sounds A and C will go to output B. If sounds D thru H are assigned tracks, they will also share the 6 DVA voices, and will sound at output B.

4) Sound A=8, sound B=8 notes assigned on the polyphony page, DVA off. All 8 notes of voice A go to output A, all 8 notes of sound B go to output B. This is the only way that sounds can be routed to totally separate outputs. Identical to the original DX Dual and Split modes with Pan assigned to A:on B:on.

5) Sound A= —, sound B=8, DVA is On. First 8 notes of sound B will go to output A. Additional notes of sound B will go to output B. Sound A (and any others C-H assigned to a track) will go to output B. Note that sound B now has priority over sound A, because fixed poly has priority over DVA.

6) Sounds A-H = —, DVA= on. Total dynamic allocation. Grey matter calls the output assignments of this polyphony set-up 'random pan'. It's not random, but it is virtually impossible to control. The first 8 notes played, regardless of the sound used (A-H) will go to output A. The second 8 will go to output B. Where any particular note goes for output depends on where it's played timewise compared to other notes. If 2 or more notes occur on the same clock beat, then the notes in the most recently recorded track number have priority. If you were really aware of how a sequence was recorded, you could place notes selectively in the A or B output. Given the complexity of the situation, as Grey Matter says, it can be considered 'random'.

4

Sequencer

-
- 4.10 Getting a metronome
 - 4.20 Recording a pattern
 - 4.30 Step recording
 - 4.40 Tempo recording
 - 4.50 Recording a song
 - 4.60 Editing
 - 4.61 Song Editing
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4.10 GETTING A METRONOME:

The metronome sound is played by the track 16 destination. The notes are C5 for the lead in beats, G#5 for the measure downbeat, and G#4 for the rest of the measure beats.

There are 2 choices. Have the DX play the metronome sound, or have it go to another synth or drum machine via MIDI. If you want to use the DX, then you need to follow the Multi-timbral set up instructions, even if you only want to use a Single sound. Find a suitable sound, one that is short, bright and percussive, and assign it in octal mode to voice H

Voice(TR16)	H>Ex-xx	MetroSound
Octal	E! Bank X	

Then assign voice H as the destination of track 16 on the main track assign page.

TR >Dest	>Transpose	>Patch	>Curv	>Level
16 H(MetroSound)	+00	---	Norm	05

The Sound Source E! Template disk supplies a special metronome sound in bank 1, voice 48, just for this purpose.

To have the metronome play out over MIDI, assign the MIDI channel of the destination unit as the destination of track 16 in the track assign menu. The destination synth/drum machine must have a sound that is active in the G#4 to G#5 note range. For a drum machine, follow its owner's manual for assigning a suitable sound to these 3 notes. If the slave unit cannot respond to this note range, remember that track 16 can be transposed up and down 2 octaves in the track assign menu, and this may help get the metronome notes in range.

Remember that when the record and play modes of SE!quencer are running, the performance button toggles the metronome on and off in the actual bars section of the pattern. The count down is always present in the lead in unless the lead in has been erased. Another way to turn off the metronome is to assign track 16 to off. Then there will be no metronome at all. Note that this will NOT clear the lead in. You'll just have a blank space with no sound — the count in bars will still play silently. If you sync to a drum machine to play its own patterns (see "MIDI Sync" chapter), then you don't need to assign a metronome. E! will put out a MIDI start command and clock signal (if turned on) when you hit start. Be aware that the drum machine will start at the BEGINNING of the lead in. Use a drum pattern that is as long as the lead in so that the sequencer pattern bars stay aligned with the drum machine pattern.

4.20 RECORDING A PATTERN:

This section covers the real time recording of a pattern. Step time recording is covered in the "Editing" chapter.

Press the Performance button and then select the desired template. Press EDIT. Press button 14 repeatedly until it shows the 'LOAD PROGRAM' menu.

14 46

Load Program>Voyeur>SE!quencer>12 Tone

Use the cursor and yes+1 buttons to load SE!quencer. The display will change to the Sequencer Main Menu page.

SE!quencer 1.12 Main Menu
1=Record 2=Play 3=Edit 4=Util NO=Exit

Press button 1 for option 1 Record. Display will change to

1 33

Record Mode...
1=Song 2=Pattern 3=Tempo NO=Exit

Press button 2 for option 2 Pattern. The display will read 'INIT Pattern XX'.

2 34

INIT Pattern XX? Sign=04/ 4 04 Bars
[yn] KS=Time Sign <>=BARS 1-32=Patterns

A) New Pattern: Choose the pattern you want to record by pressing buttons 1-32. Set the time signature using the <Left Right> Key Scale buttons, and the right and left cursor buttons to set the number of measures. When it's correct, press yes+1. The 'Are You Sure' message will appear. Press yes/+1 again. The display will change to the Lead = 00 beats screen.

Lead=xx beats?
Slider=Beats NO=Exit

Set the number of lead-in beats you want using the data entry slider. When it's correct, press the yes+1 button. The display will change to the RECORD PATTERN menu.

Record Pattern? T01:Pxx:Txxx
[yn] 1-32=Patterns KS=Track

Leave track 1 blank, because this is the DX's live play track. Press the right Key Set button to advance to whatever track you want to record first. This could be trk 2-5 if you like putting down bass or melody first, or 6-15 if you like recording drums first. These track numbers can vary depending on the actual template used. Choose a track and press yes/+1. You will hear the metronome count down for as many beats as you set. Wait for the lead in and PLAY !

B) Old Pattern: To add data to a previously recorded pattern, select the pattern number using buttons 1-32. Then, press the no/-1 button. This will bypass the Pattern Init function. The display will change to the "RECORD PATTERN" display. Select the desired track(s) and record the track(s) as above.

After recording a track, you have the option to keep it, preview it or quantize it. You can also Erase the lead-in or Strip controllers. It's best to erase the lead-in as a utility, so you don't do it before the pattern is finished. The same for Strip controllers. But if you do decide to strip controllers in the record mode, be aware that the display shows the opposite of what will happen when you select 'Keep This Track'.

Keep this Track? [yn] 1=Preview
2=Quantize 3=Erase Lead 4=Strip Conts

— This display compiles data
with controllers

Keep this Track? [yn] 1=Preview
2=Quantize 3=Erase Lead 4=Conts

— This display compiles data
without controllers

If it shows 'Strip Conts' then the data will remain when the track is compiled. If it shows 'Conts', then controllers will be stripped. Choose the desired operation. After either previewing or quantizing, you again have the option to keep the track. If you want to try again, press the no-1 button, then press the yes+1 button to start the lead-in. Wait for the downbeat and try again. After you've decided to keep it, the sequencer will automatically advance to the next numbered track. Remember that the right and left key set buttons can take you to whatever track you want to record next. Just remember (write down) what tracks you've already recorded so that you don't erase anything you've already recorded. Record as many tracks as you need. When one Pattern is finished, exit the pattern record mode by pressing the no-1 button twice. This puts you at the SE!quencer Main Menu.

SE!quencer 1.12 Main Menu
1=Record 2=Play 3=Edit 4=Util NO=Exit

If you are sure that you will no longer need the lead-in for that pattern, then select the Utilities option 4 on the main SE!quencer page. The display will read

(4) 36

Util Mode... NO=Exit
1=Song 2=Pattern 3=Track 4=Global

Select the Pattern option, button 2. The Display will read

(2) 34

Pattern Util Mode... 1=INIT 2=Copy
3=Erase Tempo 4=Erase lead NO=Exit

Choose the Erase Lead In option, button 4. The display will read

(4) 36

Erase Lead ARE YOU SURE?
[yn]

Erase the lead in using the yes+1 button.

To record another Pattern, return to the main sequencer menu by pressing no-1 button twice. Select the record option, and start the above outlined procedures again with a different pattern number. Do as many Patterns as you need. Be sure to use the no-1 button to exit all the way to the SE!quencer main menu and after finishing each pattern, and re-enter record mode so that you may initialize and set the lead-in and patterns parameters for each new pattern.

4.30 STEP RECORD:

You can step enter note data into SE!quencer, outside of real time. **Only note and velocity data is recorded.** You cannot record any controller data.

First, initialize a pattern in the normal way. If you will be doing any real time recording later, don't forget to put in a lead-in. After initializing the pattern, press no-1 twice to exit from record pattern mode to the main Sequencer menu. Press button 3 Edit for the Edit option. Press button 2 for Pattern. The display will read

```
Edit Pattern Mode... 1=Event Edit
2=Step Record NO=Exit
```

Option 2 in the Edit Pattern Mode menu is Step Time Record. After pressing button 2 to select Step Recording, the display will change to the 'Edit Pattern ?' menu.

```
Edit Pattern? TXX:PXX:TXXX
[yn] KS=Track 1-32=Patterns
```

Use buttons 1-32 to select the pattern and the right/left Key Set buttons to select the track you wish to step time record. Press the yes+1 button to continue. The display will change to the 'Edit Pattern Time' menu

Advances
Clock by
Single ticks

```
Edit Pattern Time=01:01:01 Note=1/16
K=Clock S=Note NO=Exit
```

Advances Clock
by # of ticks in
selected note

Note the clock display shows Bar 01:Beat01:Clock01. You are currently at the bar 1 downbeat. Select the length of note you want to record from 1/32 triplets to 1/4 notes using the data entry slider. Play the notes you want at the proper velocity and hold them. Pressing the right Key Set/Cartridge button will enter those notes for the desired length and advance the clock to the next unit note time value. You have now recorded a Legato note/chord.

To record staccato notes, release them before pressing the right Key Set button. They now have a duration (gate time) of 0 clock ticks. This is "ultra staccato", as it's a note on followed immediately by a note off.

To get various gate times/note durations, you may want to set the desired note value to half of what you want, play the notes, hold them, press the right Key Set/Cartridge button, release them, and press the right Key Set/Cartridge button again to advance to the next step. For example, to record 1/8 notes, set the note value to 1/16. This method would give you 1/8 notes with a 50% gate time (1/16 note duration).

Use the right/left Key Set buttons to advance forward in time to the next beat you want to record a note. This will record 'rests'. Be careful because you can't go backwards, and you would have to start over if you go past the time for the next note you want to record. The right Key Set/cartridge button advances the clock in blocks of the selected note time value. The left Key Set/internal button advances the clock in units of 1 clock tick, which is a resolution of 24 ticks per quarter note (24ppq).

Now be aware that time advances from the end of the previous note. For example, say that you recorded a chord for the duration of an 1/8 note plus 3 clock ticks. Pressing the right Key Set button will advance you 1/8 note later (12 clicks) to the clock time 3 ticks after the next absolute 1/8 note! It does not advance to the next absolute 1/8 note. You may want to set the note value smaller than the desired time value so you don't overshoot the next note. Or, keep advancing by single clock ticks.

When you reach the end of the track, the display will change to the 'Keep this track' menu. Do the desired operations, just as for any other newly recorded track. Either keeping it or choosing no-Exit will take you back to the 'Edit Pattern Mode' screen. Either exit to do something else or step record another pattern/track using the above outline. Don't forget to Keep the Track after recording and before you exit.

4.40 TEMPO RECORDING:

Real time Tempo changes can be recorded along with a Pattern. The recording process enters tempo offset values that either speed or slow the tempo. These offset values affect all playback that comes after that particular offset. For example, say that pattern 4 follows pattern 3 in a song. Pattern 3 has a tempo track recorded, and its last tempo offset value is +12. Pattern 4 has no tempo track, and so it will also play at a tempo with a +12 offset. If you want pattern 4 to play at "normal" tempo, you will have to record a tempo track for pattern 4 that puts the offset value to -12, so that the net is zero.

To enter Tempo record, press option 1 Record on the SE!quencer main menu. Then press option 3 Tempo on the Record Mode page. The display will change to

```
Record Tempo? TXX:PXX:TXXX
[yn] 1-32=Patterns Set Slider First!
```

The "Set Slider First!" prompt is to remind you to center the data entry slider so that you can move it in both directions. Use the buttons 1-32 to select the pattern on which you want to record the tempo track. Now, press the yes+1 button to start the pattern playing. The display will change to

Offset values
shown here

```
Record Tempo R=X
NO=Stop+XX Slider=Offset 1,2,3=Range
```

Choose range
using buttons
1, 2, and 3

The E! manual is wrong in the display it shows. Also, you can only get to the tempo menu when you start recording the tempo track and the pattern is playing. Thus, you should do a trial run to set the slider range. Start the recording process and ONLY select button 1, 2 or 3 to set the slider range. Let the pattern run to its end without actually moving the slider. When the pattern is over, the display will change back to the "Set Slider First!" display. Now, you're ready to record the tempo track. Press the yes+1 button. The display will again change to

```
Record Tempo R=X
NO=Stop+XX Slider=Offset 1,2,3=Range
```

Move the slider in real time to control the tempo by entering tempo offset values. Values can only be entered while the pattern is running.

If you don't like what you did, you need to erase the tempo track and try again. Press the no-1 button twice to get to the SE!quencer main menu. Press button 4 for the Util utilities option. The display will read

```
Util Mode... NO=Exit
1=Song 2=Pattern 3=Track 4=Global
```

Select option 2 Pattern. The display will change to

```
Pattern Util Mode... 1=INIT 2=Copy
3=Erase Tempo 4=Erase lead NO=Exit
```

Select option 3 Erase Tempo. The display will read

```
INIT Tempo? TXX:PXX:TXXX
[yn] 1-32=Patterns
```

Select the pattern from which you want to erase the Tempo track using buttons 1-32. Then press yes+1. After showing the "This may take a moment" message, the display will change to the Pattern Util Mode screen. Press no-1 twice to exit back to the SE!quencer main menu. To re-record the tempo track, start again following the above directions.

4.50 RECORDING A SONG:

El utilizes the 'drum machine' method of chaining together patterns to create a song. A Song is nothing more than a list of patterns. To record a Song, select the Record option on the main sequencer menu. Then select the Song option. The display will read "Record Song ?".

Record Song? SX1:SXX1:RX
[yn] 1-10=Songs

Select the song number you want to record using buttons 1-10. Then press the yes+1 button. The display will change to "Enter First Pattern".

Enter first PATTERN SX:SXX:RX
Yes=Start 1-32=Patterns NO=Exit

Choose the first pattern you want using buttons 1-32. When you have selected the first pattern, press the yes+1 button. SE!quencer will start playing. To record the rest of the patterns, select the appropriate pattern numbers using buttons 1-32. While the current pattern is playing, the display will read 'XX is next' when you select a new pattern number XX (1-32) as the next pattern.

Select patterns
1-32

Record Song SX:SXX:RX XX is next
Yes=Start 1-32=Patterns NO=Exit

When the current pattern is finished, the sequencer will advance to that next chosen pattern. Remember to wait for SE!quencer to advance to the next step and the "XX is next" display to disappear before choosing another new pattern, as you don't want to skip a pattern. Keep entering patterns until you have entered the last pattern for your song. As soon as SE!quencer starts playing the last pattern, press the no-1 button to stop the recording process. It is not necessary to wait for the last pattern to finish playing. You have completed recording the song.

If your song uses repeats of the same pattern, you do not have to select the pattern again. Just let SE!quencer play the pattern as many times as you want it repeated. SE!quencer will automatically 'loop' the pattern up to six times for a total of seven plays of that pattern before moving on to the next song step, and will keep playing that pattern as the next song step, again up to 6 repeats. This will continue until you select a different pattern number.

4.60 EDITING:

SE!quencer allows you to do three types of editing. One is Song editing, where you can insert/delete and make changes in the list of patterns that make up a song. Another is Event editing, where you can do single event editing of information in any track and pattern. The third is Step Recording, where you can enter note data out of real time.

4.61 SONG EDITING:

From the main sequencer menu, select the Edit option. 3 Select option 1 'Song'. The display will change to

```
Edit Song? S01:S001:R0
[yn] 1-10=Songs
```

Use buttons 1-10 to select the song you want to edit. Press the yes+1 button, and the display will change to

```
Edit Song? SXX:SXXX:PXX:RX 1-32=Patterns
<>=Step Yes=Repeat K=DEL S=INS NO=Exit
```

This is the menu where all the song editing is done. To step forward through the song steps, use the right cursor button >. To go backwards, use the left cursor button <. When you arrive at the desired step you want to edit, choose the desired operation. Add a repeat with the yes+1 button. Delete a step or repeat using the left Key Set/Internal button. Insert a step using the right Key Set/Cartridge button and then selecting the pattern number 1-32 to be inserted. When you have completed all necessary editing, press the no-1 button to exit Edit mode. Press no-1 again to exit to the SE!quencer main menu.

4.62 PATTERN/TRACK EVENT EDITING:

SE!quencer allows for the step event editing of the following data. Any individual note or controller data can be deleted. Any note can have its pitch, velocity or duration (note off) changed. Controller data can be 'remapped' to another type of controller, and its amount increased or decreased. However, you cannot change the clock beat that any event occurs on i.e. the note on stays where it was recorded/quantized.

From the main sequencer menu, select the Edit option 3. Select option 2 'Pattern'. the display will change to

```
Edit Pattern Mode... 1=Event Edit
2=Step Record NO=Exit
```

Select option 1 Event Edit. The display will change to 'Edit Event ?

```
Edit Event? TXX:PXX:TXXX
[yn] KS=Track 1-32=Patterns
```

Use buttons 1-32 to select the pattern you want to edit, and use the right/left Key Set buttons to select the desired track. Press the yes+1 button to continue. the display will change to 'Edit Time'.

```
Edit Time=01:01:01 KEY C 3 :6F:000C
1=Data 2=Del Yes=Preview NO=Exit
```

**The actual data
will be different**

Use the right/left Key Set buttons to move forwards/backwards in time. You need to keep track of where you are mentally even though the Bars:Beats:Clocks are displayed because you cannot hear edits as you make them. When you have arrived at the event you want to edit, you can either Delete it using button 2 or change its data using button 1. Selecting button 2 Delete will erase the event and advance you to the next event. Selecting button 1 Data will go to a 1 of 2 different displays, depending on whether it is key data or controller data --

Key Data: If the event is key data, the display will change to

KEY C 3 :63:000C Slider=Key
1=Key 2=Vel 3=DurF NO=Exit

This will
change as you
select 1,2 or 3

You can change the actual note, its velocity, and its duration. Select which aspect of the event you want to change by using buttons 1-3. Pressing each button will activate the data entry slider to modify that selected data. Make any desired modifications to that event. You can edit just one aspect, or edit all three without exiting. When finished, press the no-1 button to return to the 'Edit Time' display.

Controller Data: If the event is controller data, the display will change to

CONT XX:04 Slider=CONT
1=Cont 2=Val NO=Exit

This will
change as you
select 1 or 2

You can change the type of controller and its value. Select your choice using buttons 1-2. This will activate the data entry slider to modify that selected data. Make any desired modifications. You can edit one or both aspects without exiting. When finished, press the no-1 button to return to the 'Edit Time' display.

Edit Time=01:01:01 KEY C 3 :6F:000C
1=Data 2=Del Yes=Preview NO=Exit

The actual data
will be different

Now you can use the right/left Key Set buttons to go to the next event you want to edit. Follow the above instructions until you have changed all the events you wish. After modifying the last event, make sure you press the no-1 button to return to the 'Edit Time' display. You can now preview the changes by pressing the yes+1 button. The display will change to the 'Keep This Track ?' menu.

Keep this Track? [yn] 1=Preview
2=Quantize 3=Erase Lead 4=Strip Conts

The edited track now behaves like a normally recorded track. Press button 1 to Preview. If you like it, press the yes+1 button to keep it. If not, press the no-1 button, and you will return to the EDIT TIME menu to make further changes. Follow through as above again to preview the changes. If they are correct, press the yes+1 button to keep the track when that option appears. Or keep editing until it's correct.

If you want to undo any edits, it can be done as long as you have not 'Kept this track'. When you have previewed a track and decide that you want to start over with editing, just press the no-1 button from the 'Edit Time' menu.

Edit Time=01:01:01 KEY C 3 :6F:000C
1=Data 2=Del Yes=Preview NO=Exit

Press the
no-1 button

This exits you to the main Edit Pattern Mode menu, and erases any edits on a pattern/track you have not kept.

Edit Pattern Mode... 1=Event Edit
2=Step Record NO=Exit

Press option 1 Event again and select the same pattern and track to start over.

Editing must be done track by track. Select new patterns and tracks to edit after pressing button 1 Event Edit from the main 'Edit Pattern mode' menu. Do as many as you want to edit. Changes are saved whenever you 'Keep this track'.

4.70 HEXIDECIMAL CONVERSION:

NOTE: ALL VELOCITY, AMOUNT AND TIME DATA IS DISPLAYED IN HEXIDECIMAL. IF YOU CAN'T OR DON'T WANT TO LEARN HEX, YOU CAN BUY A CONVERSION CHART AT A COMPUTER STORE. HEX IS A BASE 16 SYSTEM, USING DIGITS ZERO THROUGH F (0-F). ALL NUMBERS ARE TWO DIGIT NUMBERS GIVING A RANGE OF 0 TO 255, 00 - FF. FOR EXAMPLE, 127=7F, 16=10, 10=0A, ETC.

The digits are as follows:

DECIMAL		HEX
0	_____	0
1	_____	1
2	_____	2
3	_____	3
4	_____	4
5	_____	5
6	_____	6
7	_____	7
8	_____	8
9	_____	9
10	_____	A
11	_____	B
12	_____	C
13	_____	D
14	_____	E
15	_____	F

The conversion works as follows: The first digit is how many 16's there are in the number. The second digit is how many 1's. You add these two together to get the decimal equivalent. For example, Hex FF is $16 \times 15 (F=15) + 1 \times 15 (F=15)$. Thus Hex FF equals decimal 255. Hex A4 is $16 \times 10 (A=10) + 1 \times 4 = 164$. Hex 0A is $16 \times 0 + 1 \times 10 (A=10) = 10$.

4.80 UTILITIES:

All utility functions are first accessed from the main utilities menu. Select the type you want, either Song, Pattern, Track or Global.

Util Mode... NO=Exit
1=Song 2=Pattern 3=Track 4=Global

As with any time you are in SE!quencer, if you get lost or get to the wrong menu, pressing the no-1 button repeatedly will always get you back to the SE!quencer Main Menu.

4.81 SONG UTILITIES

A) Song Initialize: This is the only Song utility. Select option 1 on the Song Util Mode menu

Song Util Mode
1=Init NO=Exit

After pressing button 1 the display will change to

Init Song XX?
[yn] 1-10=Song

Select the Song number 1-10 by using buttons 1-10. After selecting the song number, then press the yes+1 button to initialize that song.

4.82 PATTERN UTILITIES

This is the main Pattern Util Mode menu. The options are Initialize, Copy and Tempo Initialize

Pattern Util Mode
1=Init 2=Copy NO=Exit

A) Pattern Initialize: To initialize a Pattern, select option 1 Init on the Pattern Util Mode menu. The display will change to

INIT Pattern XX? Sign=04/ 4 04 Bars
[yn] KS=Time Sign <>=BARS 1-32=Patterns

See the section on Recording a Pattern to see the method to initialize a Pattern.

B) Pattern Copy: To select Pattern copy, select option 2 on the Pattern Util Mode menu. After pressing button 2, the display will change to

Copy Pattern XX?
[yn] 1-32=Pattern

Select the "From" pattern now, using buttons 1-32 to select the pattern to be copied. After doing this, press the yes+1 button. the display will change to

Copy Pattern XX to Pattern YY?
[yn] 1-32=Pattern

Choose the destination pattern using buttons 1-32 to select the pattern that you want to copy to. After doing this, press the yes+1 button to copy the pattern.

C) Tempo Initialize: To initialize the Tempo track, select option 3 on the Pattern Util Mode menu. The display will change to

INIT Tempo? TXX:PXX:TXXX
[yn] 1-32=Patterns

Select the desired pattern using the 1-32 buttons. Then press the yes+1 button to initialize that pattern.

4.83 TRACK UTILITIES

To select Track Utilities, press button 3 on the Util Mode main menu. The display will change to the Track Util Mode main menu:

Track Util Mode 1=Init 2=Quantize
3=Strip Controllers 4=Copy NO=Exit

You can Initialize, Quantize, Strip Controllers and Copy a track.

A) Initialize a track: Select option 1 Init on the Track Util Mode main menu by pressing button 1. The display will change to

Init Track? TXX:PXX:TXXX
[yn] KS=Track 1-32=Pattern

Select the track you want to initialize by using the right Key Set button to increment the track number, and the left Key Set button to decrement the track number. Select the Pattern number by selecting buttons 1-32.. When everything is set correctly, press the yes+1 button to erase the selected track.

B) Quantize a track: This is useful if you want to go back and quantize a previously compiled track. Select option 2 Quantize on the Track Util Mode main menu by pressing button 2. The display will change to

Quant TXX:PXX:TXXX Note=1/XXX
[yn] KS=Track SLIDER=Note

Set the note values for quantizing by using the data entry slider. Then press the yes+1 button.

C) Strip Controllers: You can also go back and strip controller data from a previously compiled track: Select option 3 Strip Controllers on the Track Util Mode main menu by pressing button 3. The display will change to

Strip TXX:PXX:TXXX?
[yn] KS=Track

Select the track number using the Key Set buttons. Select the pattern using buttons 1-32 Press the yes+1 button to strip controllers.

D) Copy. You can copy any track within a pattern to another track in the same pattern. You can't directly choose the pattern you want to work with in this menu. The pattern you will be copying within will be the pattern you have just been recording, playing or editing. To copy a track, select option 4 Copy on the Track Util Mode main menu by pressing button 4. The display will change to

Copy Track XX?
[yn] KS=Track

Select the "From" track now by using the Key Set buttons. Remember that the left Key Set button scrolls down the tracks, and the right Key Set button scrolls up the tracks. When you have the track you want to be copied, press the yes+1 button. The display will change to

Copy Pattern XX to Pattern YY?
[yn] 1-32=Pattern

Now, enter the destination track, again using the Key Set buttons. This will be the "To" track where the data will be going. You can also set the time offset value using the data entry slider. There is a range of +63 to -64 clock ticks, so you can move the copied pattern forward and backward in time relative to the original. When everything is set correctly, press the yes+1 button. You have copied that track.

4.84 GLOBAL UTILITIES

Select option 4 Global on the Util Mode main menu to go to Global Utilities.
The display will change to the Util Global main menu

```
Util Global 1=Erase SEQS  
2=After Touch Filter NO=Exit
```

A) Option 1 is the Erase SEQS option. This clears the entire ERAM sequencer memory. To select Erase SEQS, select option 1 by pressing button 1. The display will change to

```
Warning!! DESTROY ALL SEQUENCES? [yn]
```

If you are sure, then continue by pressing the yes+1 button. You have now cleared the entire sequencer memory.

B) Option 2 is Aftertouch filtering. Select option 2 by pressing button 2. The display will change to

```
Record After Touch?  
[yn]
```

To turn on Aftertouch recording, press the yes+1 button (recording of Aftertouch is the default setting. It will only be turned off if you turned it off). To turn off Aftertouch recording, press the no-1 button. Either way, your choice will be remembered and you will automatically exit to the SEIquencer Main Menu. Unfortunately, the display won't tell you whether or not Aftertouch is being recorded. All data recorded after turning this option to off will ignore Aftertouch. If you need to record Aftertouch on a different pattern/track, you must return to Utilities and turn it back on before recording that pattern/track.

4.90 FINISHING TOUCHES:

You've started from a previously saved template, have recorded all your Patterns, and recorded a Song using the Patterns. You are ready to exit SE!quencer. Press the no-1 button repeatedly until the "EXIT SE!QUENCER" menu appears.

Exit SE!quencer... ARE YOU SURE? [yn]

Then press the yes+1 button. You have now exited SE!quencer.

There are four things left to do --

First, you need to turn off the memory protects again, as the SE!quencer exit turned them back on as a precaution.

Second, select the proper song number for the particular performance. Remember that we saved a generic template set up with Song 1 as the selected song. This now needs to be changed to the actual song number you've just recorded and want to hear with this Performance. Go to the performance mode page under button 28 and select the desired Song number, 1-10.

28 60

>Perf Mode >Song >Tempo >Sync
Sequencer XX XXX INT

Double check the tempo. Change it if necessary. Set the song number.

Third, go to the Performance Name page under button 29 and rename the performance (something other than the generic template name from our set-up examples. Name it after the song title). Store this new performance into the desired location using the usual method.

Fourth, we still need to do a volume mix. Re-Select the newly stored performance. The display will temporarily read 'loading octal voices'.

Now loading Octal Voices...

When this disappears and the performance name appears in the display, press the 1-32/33-64 button to start the sequencer song.

Press the EDIT button. The display will change to the Engine Volume Page.

EDIT

DX >A >B >C >D >E >F >G >H
VOLUME 128 128 128 128 128 128 128 128

**Set each value in real
time as the song plays**

Use the cursor controls, the data entry slider and the yes+1/no-1 buttons to set the volumes for each DX sound A-H as the song is playing. When the levels are set, press the performance button, and press the 1-32/33-64 button to stop the sequence. Re-store the performance with its new mix over the old one.

5

Tonal Processor

TONAL PROCESSOR:

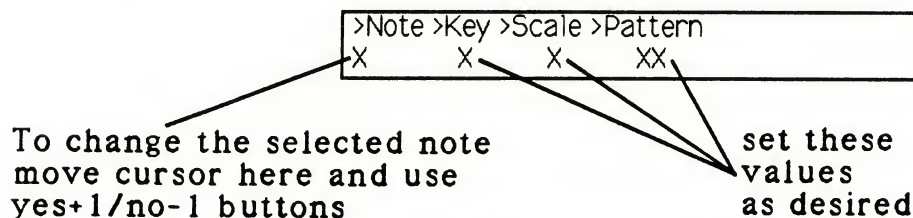
The Tonal processor is E!'s musically correct transposing table. This allows both the Player and Chords performance mode to transpose their patterns/chords and stay in the correct musical key. There are four components. The most important two are the Key and Scale parameters. These set the musical key and root note for the pattern/chord. The remaining two, Pattern and Note, control which pattern/chord will be played and which note on the keyboard will trigger it.

Key sets the musical key. Only 'major' keys can be selected directly. For example, if "C" is the selected key, notes C,D,E,F,G,A,B,C are available. Choosing "C" as the scale will give notes in the C major scale. Choosing "D" as the scale would give notes similar to D minor, as C and F will remain. They will not be C# and F#, unless you also change the Key to "D".

Scale sets the root note, the pitch that the scale starts on. Major, minor, diminished scales etc., can be selected by the proper combinations of the Key and Scale Parameters. See the bibliography at the end of the Tonal Processor chapter in the E! Owner's Manual for reference sources on tonality (here's where your formal music training pays off !).

Pattern chooses the Player pattern or Chord pattern within the selected Player Song or Chord Song, i.e. the actual pattern and chord voicing that will be played. The PlayerSong/ChordSong is chosen on the performance mode menu. Reference the E! supplement for complete track and style listings for the PlayerSong Patterns and ChordSong Patterns.

Note sets the actual triggering keyboard key for each pattern/chord set-up. This is not the same as home keyboard auto-accompaniment features. E! is totally programmable, and which pattern/chord that gets triggered has no relation to the note that triggers it. That is set with the Scale and Key parameters. Also, playing two notes does NOT give the dominant 7th or minor chords as on home keyboards. It is its own 'note'. These are the 'ALT' settings of the 'Note' parameter. G Alt is selected by playing G and ANY note below it. It doesn't matter what that second note is, as long as it is below G. The Tonal Processor will then access the relevant Alt settings. Remember to set all 24 notes in the processor (C to B and C Alt to B Alt).



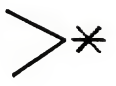
The successful use and set-up of the tonal processor basically depends on your own ears. Play with different Key, Scale and Pattern values, and trigger the result by pressing the appropriate bottom octave key. If you like what you hear, keep it, and move on to another note in the processor. If not, re-adjust Key, Scale and Pattern and try again.

6

Chords

CHORDS:

The set-up for Chords is virtually identical to that for Sequencer. The differences are that specific types of sounds need to be assigned to certain tracks, and that Key and Scale must be set for the chosen preset pattern. Again, you need to decide how many sounds the DX will play. See the DX Set Up chapter -- 'DX as a Single Sound Source' and 'DX as a Multi-timbral Sound Source' for setting up the tracks. Follow this same method for assigning tracks. Since track 1 is the live play track, make sure you assign the sound or MIDI channel you want to play live with your right hand as the destination of track 1.



Start in Single play mode, press edit. Press button 28 repeatedly until the voice mode option appears, and set this to Octal. Press Single again, and choose voices A-H. After choosing the last voice, press the Performance button, then the EDIT button. Press button 28 until the performance mode menu appears. Choose the Chords performance mode option, and set the song parameter to the desired Chord Song (reference the Grey Matter E! Supplement to see the types of Chord Songs). Activate Chord Hold if desired.

>DVA	>Clock out	>Chord Hold	>MIDI in
on	on	on	Normal

If desired
set to on

Keep pressing button 28 until the main track assign menu appears, and assign DX voices and MIDI channels to track destinations. Reference the E! supplement to see the different available Chord Songs, and which 'instruments' of the chord voicing go to which track. Then assign the desired destination to each of the tracks, either MIDI or DX. Set the Scale, Key and Pattern for each note in the tonal processor.

>Note	>Key	>Scale	>Pattern
X	X	X	XX

Set each of
these values

See the "Tonal Processor" chapter. After setting the tonal processor, play each key in the bottom octave to make sure everything's correct, then name and save the performance set-up. Press the Performance button, press and hold the WRITE button, choose a destination, and save the set-up.

✱ VERY IMPORTANT !

7

Player

PLAYER:

Player set-ups are virtually identical to Chords set-ups. Follow the instructions for Chords, but select the Player option on the performance mode menu. Select the desired Player Song on the Performance mode page under button 28. Select Chord Hold if desired. Set the tempo. Choose a Player Song.

28 60	>Perf Mode >Song	>Tempo >Sync
	Player XX	XXX INT
	>DVA >Clock out >Chord Hold >MIDI in	
	on on on	Normal

Use the Grey Matter supplied supplement to see the track assignments for the various Player Songs. You can reassign any tracks to different voices or MIDI channels. Make sure that the track 1 assignment is the sound or MIDI channel you want to play live in the right hand. The track that the supplement says is for 'Snare' could be assigned to the channel of your favorite sampler. Set the desired key, scale and pattern for each key and alternate in the tonal processor (button 28).

28 60	>Note >Key >Scale >Pattern	Set each of these values
	X X X XX	

Use the cursor controls and the yes+1/no-1 buttons to advance and set these values. See the chapter "Tonal Processor". After setting each key in the tonal processor, remember to check that everything is correct by playing the keys in the bottom octave. If correct, name and save the performance.

If you are going to use MIDI Sync and/or sync Player to MIDI clock, then see the "MIDI Sync" chapter and set the appropriate parameters.

There is 1 VERY important thing to remember when assigning percussion sounds to player tracks. When you choose a different (musical) key for that pattern, ALL the tracks will transpose according to the Key and Scale parameters. This means pitched percussion sounds will change pitch! Kick, snare and hihat sounds on the DX need to be 'fixed' sounds (i.e. where they play the same pitch regardless of note played). It also means that if you assign the snare track, for example, to a MIDI drum machine, then as the pattern transposes it will no longer be playing the note that the snare is assigned to in the drum machine! The only solution is to mute all the percussion sound tracks in the Engine main menu, and have your drum machine play patterns synced to E! (see chapter on MIDI Sync). Unfortunately, the drum patterns will not change with the player patterns.

8

Stacked and Split Performance Modes

- 8.10 Eight-Way Split
- 8.20 Floating Split
- 8.30 Four-Way Layer
- 8.40 Track Hi

8.10 8 WAY SPLIT:

This performance mode allows you to split the DX keyboard into 8 zones. Each zone can either play a DX sound or a MIDI channel. Set the DX to Octal Voice mode, choose sounds A-H, and assign these sounds in order to tracks 1-8 in the main track assign menu (These can be changed later). See the "Using SE!quencer" chapter under "DX as a Multi-Timbral Source. Don't forget to set polyphony and DVA if desired.

Press button 28 to get to the Performance mode page and set the performance mode to 8 Way Split

28 60	>Perf Mode >Song >Tempo >Sync 8Way Split --- --- ---
-------	---

Press button 29 to get to the 8 way split point page

29 61	8 WAY >12 >23 >34 >45 >56 >67 >78 SPLIT POINT XXX XXX XXX XXX XXX XXX XXX
-------	--

This displays the note numbers controlling the split points between adjacent tracks. No overlap is possible. Set the desired split points.

Also under button 29, set note shifts, volumes and microtunings if desired.

Each zone plays its similarly numbered track, namely zone 1 plays the track 1 assignment, zone 2 the track 2 assignment, etc through zone 8 playing the track 8 assignment. If you want to re-assign the sound being played by a zone, simply change that zone's track destination.

Change the destination to change the sound in zone 1

TR >Dest >Transpose >Patch >Curve >Level 01 A(voice name)+00 --- Norm 05

A zone can also play a MIDI channel. Just assign the desired MIDI channel as the destination of that zone's track. Set any desired transpose, patch, and velocity curve/level values on the main track assign menu.

Return to the 8 Way Split Point menu and play the keyboard to verify the zone split points. If everything is correct, then name and then store the performance.

8.20 FLOATING SPLIT:

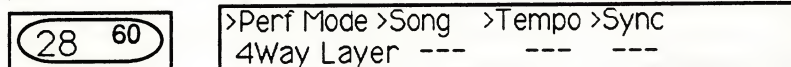
The **Floating Split** performance mode allows you to play 2 sounds with a dynamically changing split point. The two sounds are the destinations of tracks 1 and 2 in the Main Track Assign Menu. Track 1 plays the left hand sound, track 2 plays the right hand sound. The sounds and/or the MIDI channel destinations are determined by the track assign menu. To play a Floating Split entirely with the DX's sounds, it must be set up in the Multi-timbral "Octal" mode. See the chapter "DX Set Up" to choose and assign sounds in the octal mode. Set the track assign menu so that the desired sounds are assigned to tracks 1 and 2. Then select the "FlotSplit" performance option on the performance mode page under button 28.

28 60	>Perf Mode >Song >Tempo >Sync FlotSplit --- --- ---
-------	--

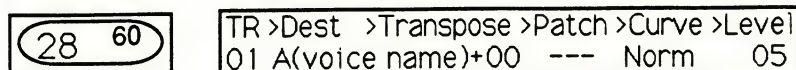
Now, name and store this performance using the usual method.

8.30 4 WAY LAYER:

This allows you to layer up to 4 voices in a performance. Again, reference the "Using SE!quencer chapter" to set up the DX as a Multi- Timbral source. Choose the 4 sounds you want to layer and assign them to voices A,B,C and D. When completed, press EDIT, then press button 28 and set the performance mode to 4Way Layer.

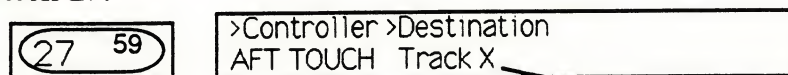


Again press button 28 to get to the main track assign menu



The voices played by the 4 Way Layer are those assigned to tracks 1,2,3 and 4. A MIDI channel can also be played in a 4 Way Layer. Just assign the desired MIDI channel as the destination of one of these tracks.

Unfortunately, all controllers (pitch bend, mod wheel etc.) can only affect one track each. These assignments are made on the controller assignment page under button 27.



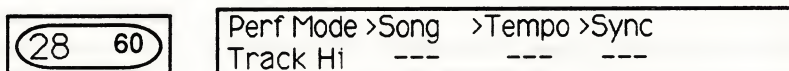
Select both the controller and its destination track

Assign the desired destination track for each controller type. See the chapter on Controller Mapping".

When completed, name and store the performance.

8.40 TRACK HI:

The Track Hi performance mode allows you to layer the highest note of a chord/melody with a second monophonic sound. The base, full range sound is the track 1 destination. The high note tracking sound is the track 2 destination. These destinations may be either DX or MIDI. Set the desired destinations in the main track assign menu. To play the Track Hi entirely with DX voices, it must be in the Multi-timbral "Octal" mode. See the chapter "DX Set Up" to see how to select and set up voices. Then assign the desired voices as the destinations of tracks 1 and 2. Choose the 'Track Hi' performance mode option on the performance mode menu under button 28.



Name and store this performance using the usual method.

9

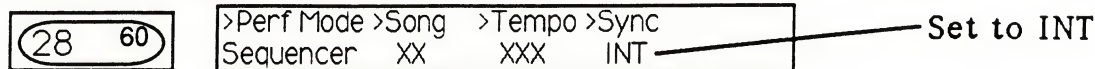
MIDI Sync

MIDI SYNC:

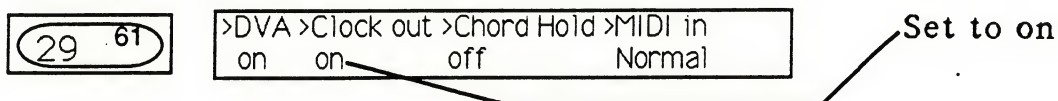
Both the SE!quencer and Player performance modes are capable of synchronization via MIDI

9.10 SE!QUENCER AS MASTER:

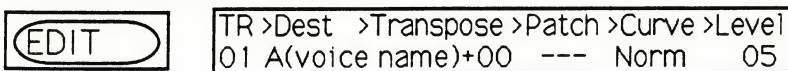
MIDI Sync out to other devices is quite simple. Press button 28 to get to the Performance Mode page. Make sure that the last option, Sync, is set to INT.



To enable clock out, press button 29 until you reach the DVA page. The second option is clock out. Move the cursor here and turn clock out on by pressing yes+1.



If you already selected a template and loaded the sequencer program before remembering that you wanted sync, then just press the EDIT button. This exits you to the main track assign menu.



Press button 29 until you get to the DVA page, and follow the previous instructions. To return to the sequencer, return to the main track assign menu, and press EDIT again. This returns you to sequencer and to the same menu you left.

9.20 SE!QUENCER AS SLAVE:

MIDI Sync in is set on the Performance mode menu of button 28. The last option is Sync. Using the yes+1/no-1 keys, set this to EXT.



Now sequencer will follow external MIDI sync and stop/start commands. Player will still wait for a lower octave key to trigger a pattern, but the tempo will be determined by the MIDI clock.

10

*Twelve
Tone Compiler*

TWELVE TONE TUNINGS:

To create, edit and use 12 Tone tunings, you first need to create the tuning you want. Press the EDIT button and then press button 14 until the "Load Program" menu appears

14 46

Load Program>Voyeur>SEquencer>12 Tone

Move the cursor to the 12 Tone option, and press the yes+1 button twice. The display will change to

Twelve Tone Main Menu
1=Edit NO=Exit

Select option 1 Edit. The display will change to

Edit Scale XX?
[yn] INT=INIT 1-32=Scale

A) If you want to create a new scale, select the scale number using buttons 1-32, and press the Internal/ left Key Set button to initialize the scale to equal temperament. The display will change to

Init Scale XX?
[yn]

Press the yes+1 Button. The display will change to the Edit Scale menu

Edit Scale XX NO=Exit Adjust Note X
Offset=+XXX 1=C/F (C) KS=Key

B) If you want to edit an existing scale, select the scale number using buttons 1-32 and just press the yes+1 button. This will take you to the above menu.

The right and left Key Set buttons increment/decrement through the 12 notes in the scale. The data entry slider controls the note offset, either coarse or fine control. Button 1 toggles the slider between coarse and fine control.

Edit Scale XX NO=Exit Adjust Note X
Offset=+XXX 1=C/F (C) KS=Key

This will change between C and F
every time you press button 1

C,C#,D,D# etc.using
Key Set buttons

To actually here this scale, you must select it on the microtuning select page and turn the microtuning on for that DX voice. Be aware that the 12 tone locations are after the Cartridge tunings. Move the data entry slider to the top of its range to get to the 12 tone tunings

Select scales 1-32
using the +1/-1
buttons

Micro tuning>Table select
12TN 1 Programmed tune

Micro >A >B >C >D >E >F >G >H
Tuning on off off off off off off off

Now you must store the Performance if you want to hear that scale every time you select that performance

1 1 Voyeur

VOYEUR:

This program allows you to see MIDI data coming in the DX's MIDI In port. To load Voyeur, press EDIT, then press button 14 until this menu appears

Load Program>Voyeur>SElquencer>12 Tone

Move the cursor to Voyeur, and press the yes+1 button twice. The display will change to

Data Stream

All Data is Enabled! CH=12 xstbpack
XX XX XX XX XX XX XX XX XX XX XX XX XX XX

Active MIDI
channel

The MIDI data stream is shown moving from right to left on the bottom line of the display. You can "freeze" the data by pressing button 18. Pressing button 18 again will clear the field and the stream will start again.

The MIDI channel that you're monitoring is selected by pressing buttons 1-16 for MIDI channels 1-16. Press button 17 for omni reception (all MIDI channels).

You can selectively filter out types of data by pressing buttons 24-32. Each button toggles on and off the reception of a data type. The display will show whether the last selected data type is enabled or disabled.

System Exclusive	25 57
Active Sensing	26 58
MIDI Time (NOT MIDI Time Code)	27 59
Pitch Bend	28 60
Program Change	29 61
Aftertouch	30 62
Controllers	31 63
Keys (Note data)	32 64

The "xstbpack" display shows what type of data is enabled or disabled. If the letter abbreviation is showing, that data type is being received.

To exit, press the no-1 button.

12 *Helpful Hints*

HELPFUL HINTS:

To return to pattern record without initializing the pattern, select record option, pattern option, then press no-1 when the "INIT Pattern XX" option appears.

When in sequencer, to quickly move between record and play modes, press the Single button. This takes you back and forth between the two modes, without having to exit or re-enter either.

Save all voices with Fractional Output Scalings in the same E! voice bank.

Save/Load voice and performance data as an ERAM file after organizing the 4 banks. Remember to also do a Disk INT Load/Save to get the System and User Microtunings in and out of the DX, as ERAM forgets this data.

Make your own Chords voicings. Any note of the chord can be transposed in the main track assign menu. Reference the E! supplement for the track assignments.

You may notice that a first note of a pattern/track seems to be missing when previewing a track. This happens because the note actually occurs in the lead in section, just before the actual track data starts. The only ways to fix this are to quantize the track or re-record it. If you don't fix it, it will be missing from the track when you erase the lead in.

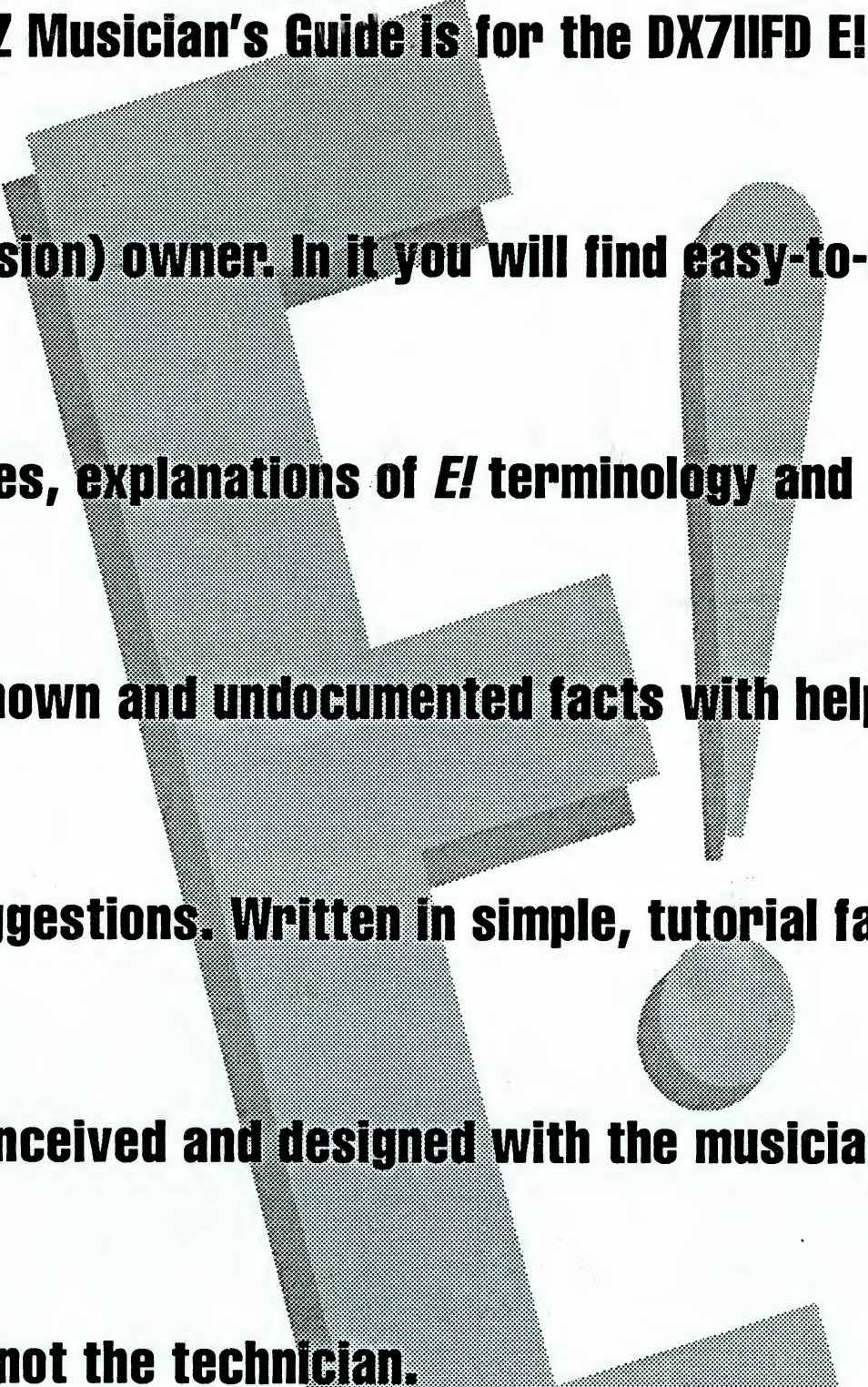
If you are not sure if you want to Strip Controllers or Quantize a track right after you've finished recording the track, don't do it yet. Just "keep the tracks". Wait until you've finished the pattern. Then you can do these functions from Utility Mode.

You should only do an "Erase all Sequences" when SE!quencer starts playing "slightly odd" patterns. This will reset the sequencer memory. But, make sure the data is already saved to disk or MIDI before you do this. You don't want to lose your work.

"System Data" is the master MIDI channels, voice block status, Local on/off, device number and programmable patch change data. You are always given the option of loading this data when loading from Disk INT or RAM4. It is not necessary to load this data every time you load a file, as this data will only change as you edit it for your own system needs, or load a file "with system". All SSU disks have a stock Yamaha system.

Even though you can send Microtunings out via MIDI, there is a bug that prevents you loading this data in via MIDI. You must do a Disk INT save/load to get the micros in and out of the DX. You can still edit the microtunings remotely over MIDI, but then they must be saved within the DX.

To fix a Bank of Performances that play voices from the wrong bank -- In other words, say you did a disk INT save of Bank 1 voices and performances. Later, you want to load this file into Bank 3. After loading this file into bank 3 you notice that all the performance names are correct, but the wrong voices are playing. This is because the performances are looking for voices in the original bank 1 locations, and you just loaded these into bank 3. To change all the performances to access bank 3 voices, place a RAM4 formatted for DX7 II voices into the cartridge slot. Save the bank 3 voices/performances you want to fix to the cartridge. Re-load these cartridge voices/performances back to bank 3. This process strips the bank number from the voice locations in the performances and will make those performances only look to voices in the same bank.



**Our E!-Z Musician's Guide is for the DX7IID E! (or D/E!
conversion) owner. In it you will find easy-to-read
examples, explanations of *E!* terminology and other
little-known and undocumented facts with helpful hints
and suggestions. Written in simple, tutorial fashion, it
was conceived and designed with the musician in
mind—not the technician.**

